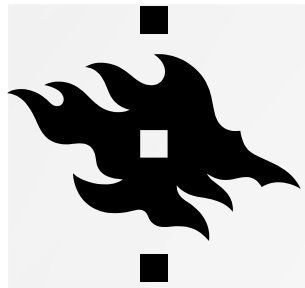# SUPPORTING LEARNING AND ASSESSING GENERIC SKILLS IN HIGHER EDUCATION
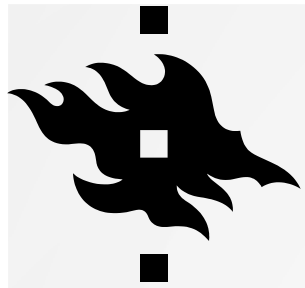
Auli Toom, Full Professor, Director
Centre for University Teaching and Learning (HYPE)

29.11.2021

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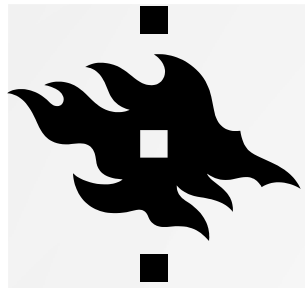
ORIENTATION

- Introduction

- What is meant by generic skills?
- Why is it important to emphasise student learning of generic skills during higher education?

- What do we know about supporting student learning of generic skills in higher education?
    - Enhancing and impeding factors?

- What kind of efforts have been made to support student learning of generic skills in higher education?
    - On curricular, course design and pedagogical practices level

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INTRODUCTION

- During university education, students are expected to learn both discipline-specific knowledge and skills and generic skills relevant for their profession and future work

- Conceptions regarding academic expertise and necessary knowledge and skills have changed rapidly during the recent years (Barnett, 2012; Bereiter & Scardamalia, 1993; Engeström, 2004)

- Generic skills are key capabilities for academics to be able to work in changing professional environments and develop throughout the career

- Pedagogies utilised during higher education play an important role in cultivating students' discipline-specific knowledge and skills and generic skills relevant for studies in higher education and collaborative academic knowledge work

(Paavola & Hakkarainen, 2004; Paavola et al., 2011; Greiff et al., 2014; Muukkonen et al., 2017; Ilomäki et al., 2017; Strijbos et al., 2015; Toom et al., 2017; Toom, 2017, Hyytinen, Toom & Postareff, 2018)

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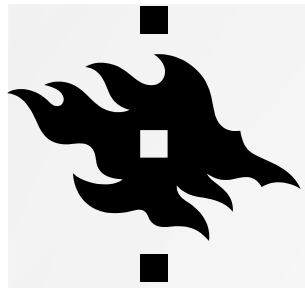
WHAT IS MEANT BY GENERIC SKILLS?

- Researchers' understandings and definitions of generic skills are versatile and varied

- Generic skills are also defined and discussed extensively in educational policy documents and curricula of higher education

- Generic skills vary from practical to complex, analytical and intellectual skills, depending on the emphasis in various contexts

(Badcock et al., 2010; Barrie, 2006; Muukkonen et al., 2019)

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WHAT IS MEANT BY GENERIC SKILLS?

- There is a tendency that various generic skills are slightly differently emphasised in various disciplinary contexts – still more similarities than differences

  - hard and soft disciplines

  - basic and applied sciences

- They are generic and considered important in any discipline

- They can be developed and utilised in both university and work contexts (Strijbos, Engels, & Struyven, 2015)

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DISCIPLINE SPECIFIC – GENERIC SKILLS

Domain-specific knowledge and skills

- Understanding of characteristics of the discipline
- Main paradigms, theories, and concepts
- Central research methods
- Relationship between theory and practice
- Practical application of scientific knowledge and skills

Generic skills

- Critical thinking
- Argumentation
- Problem solving
- Self- and co-regulation
- Communication
- Interpersonal skills and teamwork
- Versatile use of digital technologies
- Sustainability, responsibility
- Adaptivity, flexibility

(Kember, 2009; Tynjälä, 2003, AHELO, 2011-13; Kappas!; Van Dierendonck & Van der Gaast, 2013; Hanning et al., 2012; Segalàs et al., 2012)

WHY IS IT IMPORTANT FOR STUDENTS TO HAVE STRONG GENERIC SKILLS?

In student learning in higher education, generic skills are related to

- learning of disciplinary knowledge and skills (Arum & Roksa, 2011)

- collaborative work processes and joint efforts (Toom et al., 2018)

- study success

  - high grades and high thesis grades, especially analysing information, critical thinking and making arguments and looking for solutions were related high thesis grades
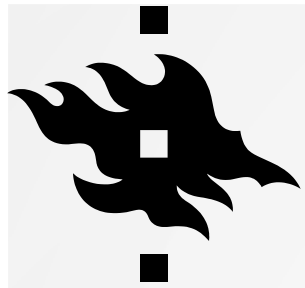
  - progress in studies

(Arum & Roksa, 2011; Tuononen & Parpala, 2019; Guligers et al. 2006)

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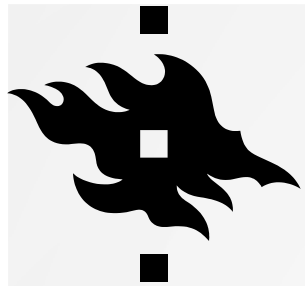# WHY IS IT IMPORTANT FOR STUDENTS TO HAVE STRONG GENERIC SKILLS?

In working life transition, generic skills are related to

- development of expertise (Tuononen et al., 2017, 2019b; Tynjälä et al. 2016).

- satisfaction with degree and experiences of usefulness of degree for working life (Tuononen et al., 2019a; 2019b)

- employability and success in working life as well as job satisfaction (Braun, Sheikh & Hannover, 2011; Mora, Garcia-Aracil & Vila, 2007; Semeijin et al., 2006; Tuononen et al., 2019b; Vermeulen & Schmidt, 2008)

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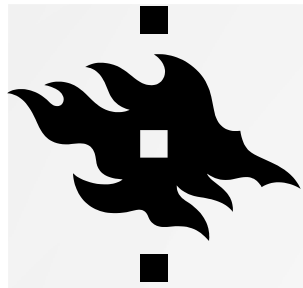Professor Auli Toom   29.11.2021   8

CHALLENGES IN STUDENT LEARNING OF GENERIC SKILLS

- Quite surprisingly, some students' generic skills do not develop during higher education (Arum & Roksa, 2011, Tynjälä et al., 2006)

- Discipline-specific knowledge may be difficult to learn if generic skills are underdeveloped (Greiff et al., 2014; Strijbos, Engels, & Struyven, 2015).

- There is great variation in students' entry-level generic skills: some students have a stronger mastery of generic skills than others (Arum & Roksa, 2011; Hyytinen, Toom & Postareff, 2018; Utriainen et al., 2017)

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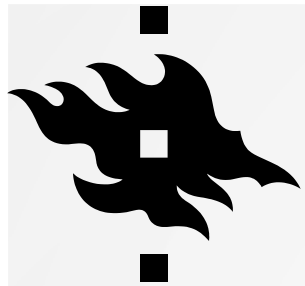Professor Auli Toom   29.11.2021   9

CURRICULUM LEVEL PERSPECTIVE ON SUPPORTING LEARNING OF GENERIC SKILLS

- Coherence of the curriculum and systematic integration of generic skills to learning goals, course contents, assignments and assessment in all courses throughout students' studies is essential

  - Student learning of generic skills is a long term process

- Practising generic skills in different course contexts, on various tasks, combining theory and practice, alone, and together with others, during the studies is important

  - Addressing generic skills solely in a specialised or single courses is found to be inadequate.

- Requires teacher collaboration in terms of the curriculum and courses in order to facilitate student learning of generic skills

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PROMOTING STUDENT LEARNING OF GENERIC SKILLS THROUGH COLLABORATIVE KNOWLEDGE PRACTICES

- Collaborative knowledge practices refer to the ways in which students (or academic experts) interact socially and cognitively when working persistently on epistemic objects (Hakkarainen et al., 2012; Knorr-Cetina, 1997; 2001)

- Students learn knowledge practices in the expert community when working collaboratively and in an object-oriented way

- Certain practices essential for object-oriented academic knowledge work have been identified (e.g. Miettinen & Virkkunen, 2005; Muukkonen et al., 2011; Paavola et al., 2011; Toom et al., 2017)
  - Shared object as a core of collective work
  - Integration of individual and collective expertise and efforts
  - Use of relevant digital technologies
  - Continuous feedback
  - Persistence in developing knowledge objects

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PROMOTING STUDENT LEARNING OF GENERIC SKILLS WITH VARIOUS METHODS

Various pedagogical approaches and teaching methods have been used for promoting student learning of generic skills:

- Problem-based collaborative learning (Hmelo-Silver, 2004; Dunlap, 2005)

- Project-based collaborative learning (Bell, 2010; Helle et al., 2006)

- Integrative pedagogy (Tynjälä et al. 2014; Virtanen & Tynjälä, 2019)

- Collaboration with multidisciplinary working life experts, work integrated learning (WIL) (Cooper et al. 2010; Muukkonen et al., 2018)

- Concept maps (see Ruiz-Primo, Schultz, & Shavelson, 2001; Nousiainen et al., 2019)

- Real and authentic dilemmas and performance tasks (Shavelson, 2018; Hyytinen & Toom, 2019)

- Use of versatile knowledge sources

- Long work processes

→ **student's active role and agency in learning process**
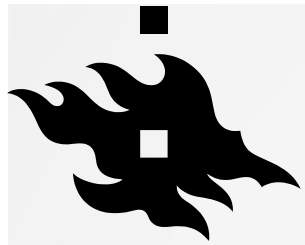
ASSESSMENT PLAYS A CENTRAL ROLE IN STUDENT LEARNING OF GENERIC SKILLS

- Learning goals in curricula and courses define the assessment methods and practices
- Assessment is a very powerful tool in the teaching – learning process: it should focus on those issues that students are aimed to learn

- Teachers are traditionally used to assess discipline-specific knowledge and skills
- It is challenging to assess student learning of generic skills during the studies

→ **student's active role in assessing own learning of generic skills**
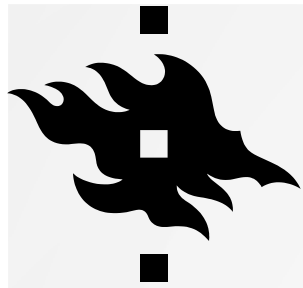
ASSESSMENT IN DIFFERENT PHASES OF LEARNING PROCESS (BIGGS, 2003; BROWN ET AL. 1997; BOUD & FALCHIKOV, 2006; VIRTANEN ET AL. 2016)
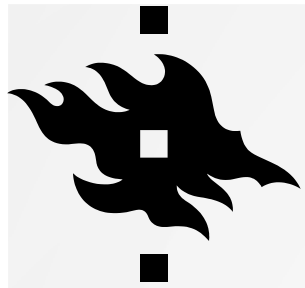
Before the course (*Diagnostic*)	During the course (*Formative*)	After the course (*Summative*)
▪ Alignment with learning goals: focus on discipline specific and generic skills	▪ Alignment with learning goals: focus on discipline specific and generic skills	▪ Alignment with learning goals: focus on discipline specific and generic skills
▪ Provides information about students' knowledge and skills	▪ The focus on giving/ receiving feedback during learning process	▪ Provides information on how well students have learned what they were supposed to learn
▪ Helps students in activating knowledge and skills relevant for the course and link it to the course	▪ Provides feedback for both the student and the teacher	▪ Helps students and teacher in identifying the strengths and further areas of development
▪ Teacher, self or peer assessments	▪ Enables concentrating on the essential focuses	▪ Teacher, self or peer assessments
	▪ Teacher, self or peer assessments	

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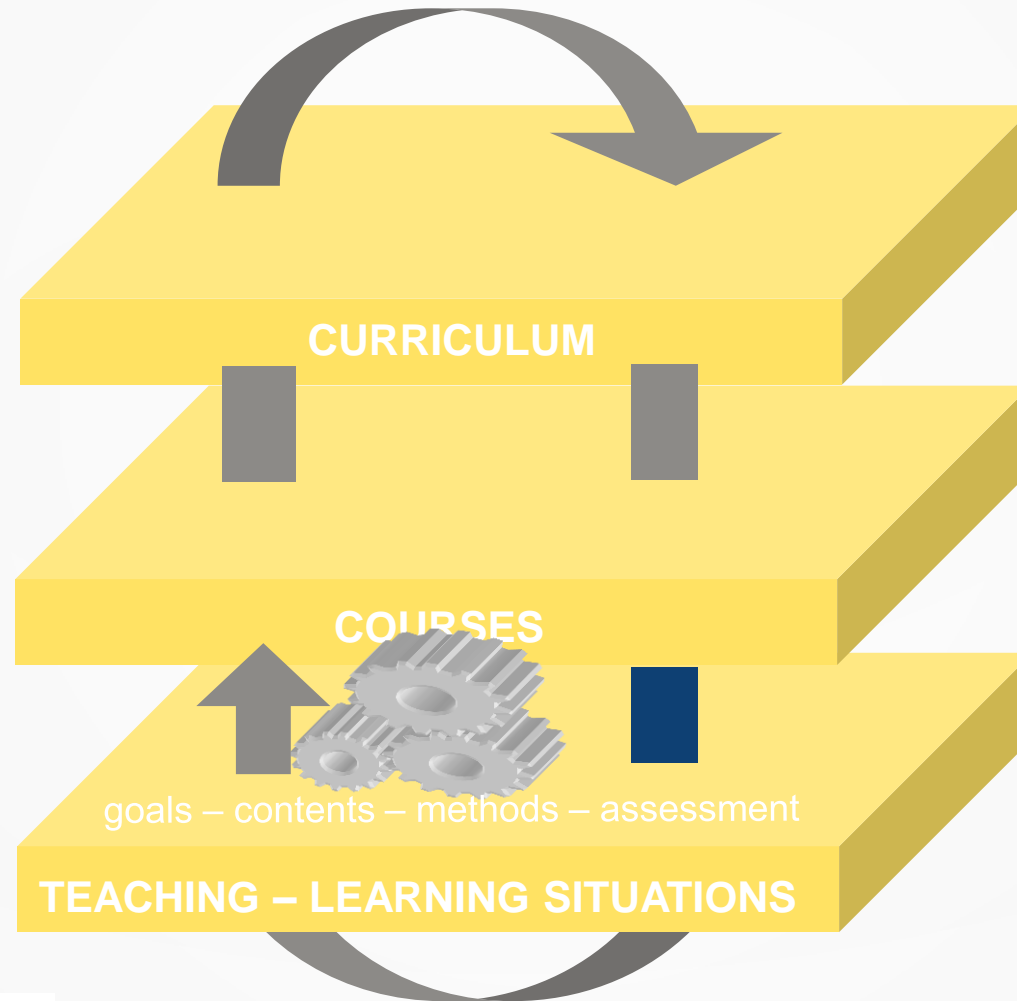Professor Auli Toom   29.11.2021   14
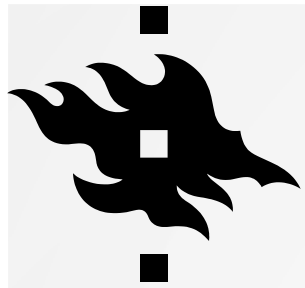
SELF- AND PEER ASSESSMENT (BOUD & FALCHIKOV, 2006; VIRTANEN ET AL. 2016)

- Activates students and develops their reflective skills.

- Combines learning and assessment processes.

- Supports higher quality learning outcomes.

- Gives feedback to students about their own learning.

- Reduces teacher's workload.

- Requires clear assessment criteria and instructions.
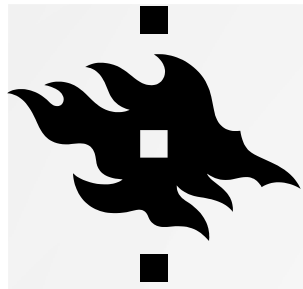
PROMOTING STUDENT LEARNING OF GENERIC SKILLS SYSTEMICALLY

CURRICULUM

COURSES

goals – contents – methods – assessment

TEACHING – LEARNING SITUATIONS

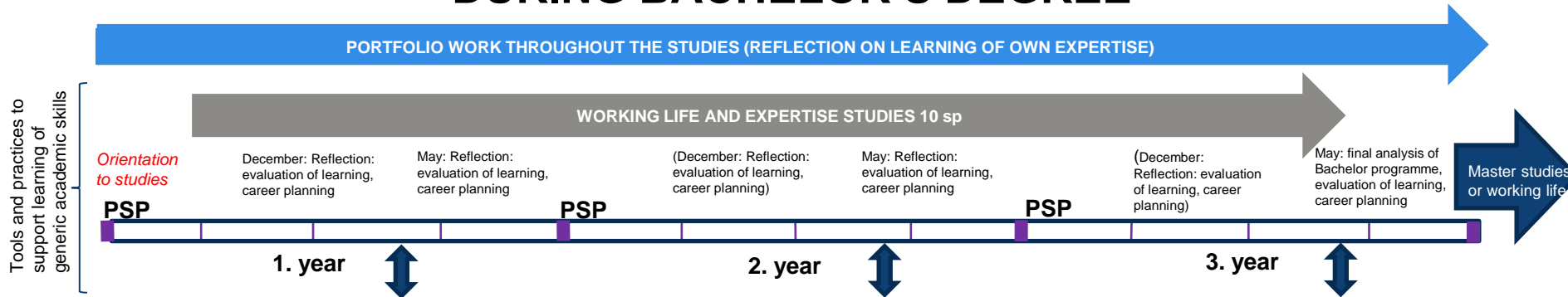(cf. Kansanen, 2004; Krokfors et al., 2006)

CHALLENGES IN INTEGRATING LEARNING OF GENERIC SKILLS TO CURRICULA AND COURSES

- Underdeveloped curriculum thinking and designs, large student groups

- Lack of understanding of importance of student learning of generic skills

- Lack of pedagogical skills (related to teaching and assessment methods) to support student learning of generic skills

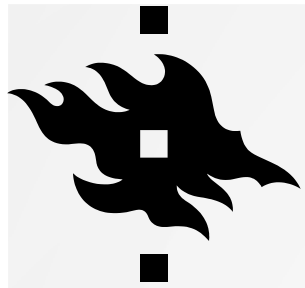(Barrie, 2006; Toom et al., 2018; Muukkonen et al., 2019)

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EXAMPLE: SUPPORTING LEARNING OF GENERIC ACADEMIC SKILLS DURING BACHELOR'S DEGREE

PORTFOLIO WORK THROUGHOUT THE STUDIES (REFLECTION ON LEARNING OF OWN EXPERTISE)

Tools and practices to support learning of generic academic skills

WORKING LIFE AND EXPERTISE STUDIES 10 sp

Orientation to studies

December: Reflection: evaluation of learning, career planning

May: Reflection: evaluation of learning, career planning

(December: Reflection: evaluation of learning, career planning)

May: Reflection: evaluation of learning, career planning

(December: Reflection: evaluation of learning, career planning)

May: final analysis of Bachelor programme, evaluation of learning, career planning

Master studies or working life

PSP   **PSP**   **PSP**

1. year   **2. year**   **3. year**

Examples of generic academic skills to be integrated to domain specific studies			
Generic academic skills	1. year	2. year	3. year
Study environment skills	Digitalisation, internationalisation, inquiring orientation		
Self-regulation and management skills	- Interest and motivation towards the studies - Time management - Study planning, practising academic studying	- Evaluation of own study skills, challenges in studies - Responsibility of own studies - Managing own resources, stress and well-being	- Lifelong learning skills - Managing thesis writing processes - Project work skills
Communication, interaction and collaboration skills	- Orientation to the study context - Integration to the scholarly community	- Interaction and collaboration skills - Oral, written and digital communication skills	- Collaboration and leadership skills - Oral, written and digital communication skills - Presentation skills, negotiation skills
Research skills and scientific thinking	- Critical reading, media literacy - Practising academic writing - Orientation to ethical thinking	- Academic writing - Argumentation skills - Information search and evaluation skills - Application of knowledge - Developing ethical thinking	- Academic writing, evaluation of information - Argumentation skills - Innovations and creativity, problem solving and decision making - Research ethics and ethical practices
Identifying own expertise	- Evaluation of own learning - Identifying own expertise	- Identifying own expertise - Progress in studies, career alternatives, describing progress of own learning	- Identifying and demonstrating own expertise, job search skills - Career planning and setting future goals

Learning of generic academic skills throughout the studies

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THANK YOU

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